Special Issue On Wildfires Preface

Fire Safety Journal

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Over the last 60 years, the research in wildfire behavior followed the same trend as the research in fire safety, despite being a less mature field. It had a golden era between the 60's and the 80's. During this time, prominent scientist like Howard Emmons, Philip Thomas or Forman Williams published a substantial amount of experimental and modeling work in journals like the International Symposium of Combustion, Combustion and Flame and Combustion Science and Technology.

Then, the involvement of scientists from the combustion and fire safety communities almost ceased as research in fire safety decreased in general. They are several causes for it. Among others, one can cite a lack of private funding or the use of government funding for developing empirical and semi-empirical approaches.

Since then, the fire safety and wildfire communities are following distinct paths, even if some people like William Frandsen or Franck Albini continued to conduct active research on wildfire behavior. Franck Albini gave an invited lecture to the 5th IAFSS Symposium in 1997 [1] in which he stated and analyzed the gaps between the two communities. A more recent paper updated Albini's statement [2].

Nowadays, biologists, ecologists, foresters and geo-scientists are the main contributors to the wildfire community. This shows that this topic is very complicated and requires a multidisciplinary approach but it also underlines the weakness of the research in fire behavior. Very few teams are involved in this specific topic whereas we still do not understand many aspects of wildfire behavior. Some of the teams are represented in this special issue but other main contributors are not included like NIST, Los Alamos National Laboratory, USDA-FS and CSIRO. This is because the special issue is made of a selection of the papers presented during the 6th Mediterranean Combustion Symposium that was held in Corsica in June 2009, the main contributors to this conference being European teams.

The papers included in this special issue show clearly that the wildfire and the fire safety communities share common scientific issues and fundamental problems. The papers on time to ignition, rate of spread, non-intrusive measurement techniques, fire intensity and fire retardants are good examples of these common grounds. Any improvement in one community will be beneficial to the other. Some of the research groups that contributed to this special issue are already at the crossway between the two research areas. They are mainly University groups and this trend is different from the lat 30 years when government agencies were the almost exclusive support for research on wildfire behavior [1].

Wildfires are a very complex phenomenon and this maybe discourages many researchers to tackle the related scientific problems. However, this special issue is the perfect example that many approaches used in fire safety are highly relevant to wildfires and that the reciprocal is also valid.

A global scientific approach of every aspect of the problem, like emissions in the atmosphere, management of the Wildland/Urban Interface, fire extinction or mitigation necessitate a multidisciplinary approach but the core of the fire, the series of phenomena at the basis of fire spread, is based on chemical and physical processes and would benefit from more inputs from the fire safety community. We are aware that one of the structural issues to involve more people is to establish constant and reliable sources of funding in the United States, Europe, Australia and Russia.

By making this special issue, we hope that we will contribute to the increase in interest on wildfire behavior and that more fire researchers will invest their skills to help our societies to tackle the great challenges they will face because of the increase of wildfires in our changing socio-economical and climate environment.

Albert Simeoni and Domingos Xavier Viegas

References

[1] F.A. Albini (1997) An overview of research on wildland fires. Proceedings of the 5th International Symposium on Fire Safety Science, 59-74.

[2] R. Rehm and W. Mell (2005) Improved models of forest and wildland-urban-interface fires. Sixth Symposium on Fire and Forest Meteorology, 5.3.